CONTENTS TO VOLUME 17

NUMBER 1

W. GRASSE, F. OSTER and H. ABA-OUD	1	HYSOLAR: the German–Saudi Arabian program on solar hydrogen—5 years of experience
J. J. PODESTA, R. C. V. PIATTI, A. J. ARVIA, P. EKDUNGE, K. JÜTTNER and G. KREYSA	9	The behaviour of Ni–Co–P base amorphous alloys for water electrolysis in strongly alkaline solutions prepared through electroless deposition
K. SASIKALA, CH. V. RAMANA and P. RAGHUVEER RAO	23	Photoproduction of hydrogen from the waste water of a distillery by *Rhodobacter sphaeroides* O.U. 001
M. SINGH, Y. K. VIJAY and I. P. JAIN	29	Effect of hydrogen absorption on electrical resistance and Hall effect charge carrier concentration in FeTi, $FeTiS_2$, TiNi and $TiNiSe_2$ thin films
K. S. UPADHYAYA, M. SINGH, A. S. BANTHIA, Y. K. VIJAY and I. P. JAIN	37	Thickness-dependent hydrogenation of obliquely deposited FeTi thin films
A. Y. ESAYED and D. O. NORTHWOOD	41	Metal hydrides: a review of group V transition metals—niobium, vanadium and tantalum
S. M. RAINEY and T. N. VEZIROĞLU	53	Computer modeling and comparison of hydrogen-fueled and methane-fueled hypersonic vehicles
Book Reviews		
F. BARBIR	63	*Energy and Environmental Progress—I.* Edited by T. Nejat Veziroğlu
M. V. C. SASTRI	65	*Solar Hydrogen Energy: The Power to Save the Earth.* By John O'M. Bockris and T. Nejat Veziroğlu (with D. Smith)
J. EYRE	67	Hydrogen Energy News and Views
	69	Calendar of Events
	71	Hydrogen Energy and Energy Related Publications
Announcements	79	NATO ASI in Multifunctional Mesoporous Inorganic Solids, Sintra, Portugal, 5–17 April 1992
	80	FLOWERS 92, Florence World Energy Research Symposium, Firenze, Italy, 7–12 June 1992
	81	The National Hydrogen Association's 3rd Annual U.S. Hydrogen Meeting, A Blueprint for Hydrogen's Future and a Workshop on Enabling Technologies, Washington, DC, U.S.A., 18–20 March 1992
	82	2nd Baku International Symposium on Energy, Environment, Economy, Baku Azerbaijan, 17–20 August 1993
	83	Solar Hydrogen Energy Systems, 1992 ASME Winter Annual Meeting, Anaheim, California, U.S.A., 8–12 November 1992

NUMBER 2

T. N. Veziroğlu and R. B. Cole	87	Obituary: Kurt H. Weil (1896–1992)
M. M. Taqui Khan, M. R. Adiga and J. P. Bhatt	89	Photogeneration of hydrogen by *Halobacterium halobium* MMT_{22} coupled with silicon PN junction semiconductor without external bias potential—II
M. M. Taqui Khan, M. R. Adiga and J. P. Bhatt	93	Large scale photobiological solar hydrogen generation using *Halobacterium halobium* MMT_{22} and silicon cell
Li Qiyuan	97	A new kind of hydrogen-producing catalyst for hydrocarbon steam reforming
O. Savadogo, S. Lévesque, E. Ndzebet, A. Martel and J. Lessard	101	Comparison between nickel electrodeposited with $PW_{12}O_{40}^{3-}$ electrodes and Raney cobalt electrodes for the hydrogen evolution reaction in acid and basic media
O. Savadogo and B. Bartolacci	109	The hydrogen evolution reaction in an acid medium on a nickel–copper alloy electrodeposited with heteropolyacids
G. G. Scherer, E. Killer and D. Grman	115	Radiation grafted membranes: some structural investigations in relation to their behavior in ion-exchange-membrane water electrolysis cells
M. A. El-Osairy, I. A. El-Osery, A. M. Metwally and M. M. Keshk	125	Temperature and composition analysis of a convective model of metal hydride hydrogen storage beds
I. Anzulovic	129	Optimization of gaseous hydrogen storage system
X.-L. Wang and S. Suda	139	Kinetics of the hydriding–dehydriding reactions of the hydrogen–metal hydride systems
I. Wierzba, K. Harris and G. A. Karim	149	Effect of low temperature on the rich flammability limits in air of hydrogen and some fuel mixtures containing hydrogen
R. F. Alimova, L. F. Gol'tsova, V. A. Garkusheva, N. I. Chabak, L. B. Maksimal'do and M. P. El'konin	153	Bibliography on the Hydrogen Energy and Technology (U.S.S.R.) (Editors-in-chief: V. A. Gol'tsov and V. K. Popov)
	171	Calendar of Events
Announcements	173	FLOWERS 92, Florence World Energy Research Symposium, Firenze, Italy, 7–12 June 1992
	174	International Symposium, ECOS'92, On Efficiency, Costs, Optimization and Simulation of Energy Systems, 15–18 June 1992
	175	First Tatarstan Symposium on Energy, Environment & Economics, Kazan, Tatarstan, Russian Federation, Commonwealth of Independent States (Ex U.S.S.R.), 9–13 August 1992
	176	Solar Hydrogen Energy Systems, 1992 ASME Winter Annual Meeting, Anaheim, California, 8–12 November 1992
	177	The American Academy of Science, New Publications
	179	An Invitation to Energy Scientists, Engineers and Planners

NUMBER 3

S. Cavallaro, S. Freni, R. Cannistraci, M. Aquino and N. Giordano	181	Alkali effect on the MCFC–internal reforming catalyst life
A. Brinner, H. Bussmann, W. Hug and W. Seeger	187	Test results of the HYSOLAR 10 kW PV-electrolysis facility
M. A. Rosen and D. S. Scott	199	Exergy analysis of hydrogen production from heat and water by electrolysis
Su-Il Pyun and Chang-Ha Kim	205	Role of hydrogen in the electronic transport through passivating TiO_2 films
A. Y. Esayed and D. O. Northwood	211	The effect of hydride formation and decomposition cycles on hysteresis in V_xNb_{1-x}–H systems
R. M. Zweig	219	Pollution solution/revisited
S. Gursu, M. Lordgooei, S. A. Sherif and T. N. Veziroğlu	227	An optimization study of liquid hydrogen boil-off losses
P. Selvam	237	Alcohol fuels—the question of their introduction: a comparison with conventional vehicular fuels and hydrogen
H. R. Hinds	243	Hydrogen Energy News and Views
	247	Calendar of Events
Announcements	249	FLOWERS 92, Florence World Energy Research Symposium, Firenze, Italy, 7–12 June 1992
	250	Foundation For Environmental Protection and Research, Summer School on Ecology, Izmir, Türkiye, 29 June–5 July 1992
	251	First Tatarstan Symposium on Energy, Environment & Economics, Kazan, Tatarstan, Russian Federation Commonwealth of Independent States (Ex U.S.S.R.), 9–13 August 1992
	252	Second International Conference on Environmental Issues and Management of Waste in Energy and Mineral Production, Calgary, Alberta, Canada, 2–4 September 1992
	253	Solar Hydrogen Energy Systems, 1992 ASME Winter Annual Meeting, Anaheim, California, 8–12 November 1992
	254	The First International Conference on New Energy Systems and Conversions, Pacific Convention Plaza Yokohama, Yokohama, Japan, 27–30 June 1993
	255	ENSEC '93, International Conference on Energy Systems and Ecology, Cracow, Poland, 5–9 July 1993
	256	2nd Baku International Symposium on Energy, Environment, Economy, Baku, Azerbaijan, 17–20 August 1993

NUMBER 4

G. Schiller and V. Borck	261	Vacuum plasma sprayed electrodes for advanced alkaline water electrolysis
S. I. Prokopiev, Yu. I. Aristov, V. N. Parmon and N. Giordano	275	Intensification of hydrogen production via methane reforming and the optimization of H_2:CO ratio in a catalytic reactor with a hydrogen-permeable membrane wall

K. T. KLASSON, C. M. D. ACKERSON, E. C. CLAUSEN and J. L. GADDY — 281 Biological conversion of synthesis gas into fuels
A. KR. SINGH, A. K. SINGH and O. N. SRIVASTAVA — 289 Synthesis of $MmNi_{4.5}Al_{0.5}$ by mechanical alloying
R. KÜMMEL, H.-M. GROSCURTH and U. SCHÜßLER — 293 Thermoeconomic analysis of technical greenhouse warming mitigation
F. BARBIR and T. N. VEZIROĞLU — 299 Effective costs of the future energy systems
309 Calendar of Events
311 Hydrogen Energy and Energy Related Publications

Announcements

319 FLOWERS 92, Florence World Energy Research Symposium, Firenze, Italy, 7–12 June 1992
320 Foundation for Environmental Protection and Research, Summer School on Ecology, Izmir, Türkiye, 29 June–5 July 1992
321 First Tatarstan Symposium on Energy, Environment & Economics, Kazan, Tatarstan, Russian Federation Commonwealth of Independent States (Ex U.S.S.R.), 9–13 August 1992
322 International Symposium, ECOS '92, On Efficiency, Costs, Optimization and Simulation of Energy Systems, 15–18 June 1992
323 9th World Hydrogen Energy Conference, Paris, France, 22–25 June 1992
325 An Invitation to Energy Scientists, Engineers and Planners
327 Erratum

NUMBER 5

JINGJIANG LIU, ZHONGCHENG PAN and WEI DONG — 329 Study on the mechanism of formation of metallic hydrogen
K. S. NAHM, W. Y. KIM, S. P. HONG and W. Y. LEE — 333 The reaction kinetics of hydrogen storage in $LaNi_5$
N. LUTFI and T. N. VEZIROĞLU — 339 Solar-hydrogen demonstration project for Pakistan
P. CRANE, D. S. SCOTT and M. A. ROSEN — 345 Comparison of exergy of emissions from two energy conversion technologies, considering the potential for environmental impact
P. J. CATANIA — 351 Energy and the environment
H. K. ABDEL-AAL and M. A. SHALABI — 359 Non-petroleum routes to petrochemicals
H. B. MATHUR, L. M. DAS and T. N. PATRO — 369 Hydrogen fuel utilization in CI engine powered end utility systems
R. ANAHARA — 375 Phosphoric acid fuel cells (PAFCs) for commercialization
381 Calendar of Events

Announcements

383 First Tatarstan Symposium on Energy, Environment & Economics, Kazan, Tatarstan, Russian Federation Commonwealth of Independent States (Ex U.S.S.R.), 9–13 August 1992

384 Second International Conference on Environmental Issues and Management of Waste in Energy and Mineral Production, Calgary, Alberta, Canada, 2–4 September 1992
385 The First International Conference on New Energy Systems and Conversions, 27–30 June 1993
386 ENSEC '93 International Conference on Energy Systems and Ecology, Cracow, Poland, 5–9 July 1993
387 2nd Baku International Symposium on Energy, Environment, Economy, Baku, Azerbaijan, 17–20 August 1993
389 International Association for Hydrogen Energy

NUMBER 6

T. N. Veziroğlu and F. Barbir 391 Hydrogen: the wonder fuel
S. K. Chawla and K. K. Ghosh 405 Thermodynamic analysis of hydrogen production from biogas for phosphoric acid fuel cell
I. Arul Raj 413 Nickel based composite electrolytic surface coatings as electrocatalysts for the cathodes in the energy efficient industrial production of hydrogen from alkaline water electrolytic cells
J. O'M. Bockris and Z. S. Minevski 423 Electrocatalysis: a futuristic view
J. O'M. Bockris, Chin-Chung Chien, D. Hodko and Z. Minevski 445 Cold fusion as a consequence of high fugacity among hydrogen isotopes
A. K. Demin, V. Alderucci, I. Ielo, G. I. Fadeev, G. Maggio, N. Giordano and V. Antonucci 451 Thermodynamic analysis of methane fueled solid oxide fuel cell system
S. J. Major 459 Natural gas and the environment—a Victorian perspective
465 Calendar of Events

Announcements

467 First Tatarstan Symposium on Energy, Environment & Economics, Kazan, Tatarstan, Russian Federation Commonwealth of Independent States (Ex U.S.S.R.), 9–13 August 1992
468 Progress in Electrocatalysis, Theory and Practice, Ferrara, Italy, 12–15 September 1993
469 European Workshop on Electrochemical Technology of Molten Salts, Hotel Tivoli Sintra, Sintra, Portugal, 14–17 March 1993
471 An Invitation to Energy Scientists, Engineers and Planners

NUMBER 7

O. SAVADOGO and H. LAVOIE	473	Hydrogen evolution reaction in an alkaline medium on cobalt electrodeposited with heteropolyacids
A. K. VIJH, G. BÉLANGER and R. JACQUES	479	Electrolysis of water on silicides of some transition metals in alkaline solutions
A. SZYSZKA	485	Demonstration plant, Neunburg vorm Wald, Germany, to investigate and test solar-hydrogen technology
S. A. NAMAN	499	Comparison between thermal decomposition and photosplitting of H_2S over V_xS_y supported on oxides at 450–550°C in a static system
K. S. YOUNG	505	Advanced composites storage containment for hydrogen
D. C. NORTH	509	An investigation of hydrogen as an internal combustion fuel
S. M. LAMBE and H. C. WATSON	513	Low polluting, energy efficient C.I. hydrogen engine
T. N. VEZIROĞLU and F. BARBIR	527	Initiation of hydrogen energy system in developing countries
D. SFINTEANU and N. APOSTOLESCU	539	Efficiency, pollution control and performances of hydrogen-fueled passenger cars
P. CRANE and D. S. SCOTT	543	Efficiency and CO_2 emission analysis of pathways by which methane can provide transportation services
Short Communications		
V. C. SRIVASTAVA, P. RAGHUNATHAN and S. GUPTA	551	The inverse isotope effect in hydrogen absorption in V_2O_5
J. A. LAURMANN	553	World energy prices, geopolitics and global warming
A. R. BRUN-TSEKHOVOI	555	On the concept of transition period in hydrogen energy development
Book Review		
T. N. VEZIROĞLU	557	*The Hydrogen World View*. By Roger E. Billings
D. G. LOVERING	559	Hydrogen Energy News and Views
	569	Calendar of Events
	571	Hydrogen Energy and Energy Related Publications
Announcements	579	First Tatarstan Symposium on Energy, Environment & Economics, Kazan, Tatarstan, Russian Federation Commonwealth of Independent States (Ex U.S.S.R.), 9–13 August 1992
	580	Second International Conference on Environmental Issues and Management of Waste in Energy and Mineral Production, Calgary, Alberta, Canada, 2–4 September 1992
	581	The First International Conference on New Energy Systems and Conversions, Pacific Convention Plaza Yokohama, Yokohama, Japan, 27–30 June 1993
	582	ENSEC '93 International Conference on Energy Systems and Ecology, Cracow, Poland, 5–9 July 1993

583 2nd Baku International Symposium on Energy, Environment, Economy, Baku, Azerbaijan, 17–20 August 1993
585 International Association for Hydrogen Energy

NUMBER 8

M. SAKURAI, M. AIHARA, N. MIYAKE, A. TSUTSUMI and K. YOSHIDA — 587 Test of one-loop flow scheme for the UT-3 thermochemical hydrogen production process

G. WALKER, M. WEISS, G. READER and O. R. FAUVEL — 593 Small-scale liquefaction of hydrogen

G. MEUNIER and J. P. MANAUD — 599 Thin film permeation membranes for hydrogen purification

M. N. MUNGOLE, R. BALASUBRAMANIAM, K. N. RAI and K.P. SINGH — 603 Hydrogen storage properties of the $MnNi_{4\cdot6}Sn_{0\cdot4}$ system

M. N. MUNGOLE, K. N. RAI, R. BALASUBRAMANIAM and K. P. SINGH — 607 Hydrogen storage properties of $MmNi_{5-x}Mn_x$ system based on Indian mischmetal

V. BULCKAEN — 613 Energy losses in the transport in 4000 km pipelines of liquid hydrogen and oxygen derived from the splitting of water and of liquid methane

M. RON, E. BERSHADSKY and Y. JOSEPHY — 623 Thermal conductivity of PMH compacts, measurements and evaluation

S. QIAN and D. O. NORTHWOOD — 631 Effect of hydrogen aliquot size on the plateau pressures and pressure hysteresis in intermetallic compound–hydrogen systems

H. B. MATHUR, L. M. DAS and T. N. PATRO — 635 Effects of charge diluents on the emission characteristics of a hydrogen fueled diesel engine

D. STASCHEWSKI — 643 Hydrogen–air fuel cells of the alkaline matrix type: manufacture and impregnation of electrodes

J. NITSCH, H. KLAISS and J. MEYER — 651 The contribution of hydrogen in the development of renewable energy sources

665 Calendar of Events

Announcements

667 European Workshop on Electrochemical Technology of Molten Salts, Hotel Tivoli Sintra, Sintra, Portugal, 14–17 March 1993

668 President John Fitzgerald Kennedy's Grand and Global Alliance: World Order for the New Century

669 An Invitation to Energy Scientists, Engineers and Planners

NUMBER 9

L. BROSSARD — 671 Cobalt black electrodes for the oxygen evolution reaction from electrolysis of 40 wt% KOH

C. A. LUENGO, G. CIAMPI, M. O. CENCIG, C. STECKELBERG and M. A. LABORDE — 677 A novel catalyst system for ethanol gasification

S. CERVERA-MARCH, L. BORRELL, J. GIMÉNEZ, R. SIMARRO and J. M. ANDÚJAR 683 Solar hydrogen photoproduction from sulphide/sulphite substrate

S. SARKAR, K. D. PANDEY and A. K. KASHYAP 689 Hydrogen photoproduction by filamentous non-heterocystous cyanobacterium *Plectonema boryanum* and simultaneous release of ammonia

G. D. SMITH, G. D. EWART and W. TUCKER 695 Hydrogen production by cyanobacteria

W. HUG, J. DIVISEK, J. MERGEL, W. SEEGER and H. STEEB 699 Highly efficient advanced alkaline electrolyzer for solar operation

W. PONG and J. F. ZHENG 707 Photoemission and photoluminescence studies of catalyzed photoelectrode surfaces for hydrogen production

K. SCHULTZE and H. BARTELT 711 Formation and reduction of nickel(II)-hydroxide on Raney-nickel electrodes and its influence on the hydrogen overvoltage

M. AIHARA, M. SAKURAI, A. TSUTSUMI and K. YOSHIDA 719 Reactivity improvement in the UT-3 thermochemical hydrogen production process

M. J. DE GIZ, J. C. P. SILVA, M. FERREIRA, S. A. S. MACHADO, E. A. TICIANELLI, L. A. AVACA and E. R. GONZALEZ 725 Progress on the development of activated cathodes for water electrolysis

S. SRINIVASA MURTHY and M. V. C. SASTRI 731 Thermodynamic analysis of two-stage ternary metal hydride heat pumps

H. R. HINDS 737 Hydrogen Energy News and Views

741 Calendar of Events

Announcements

743 Workshop on Optoelectronic Materials and their Applications, La Habana, Cuba, 18–25 February 1993

744 Project Energy '93. Improving the Quality of Life—Safeguarding the Environment, Kansas City, Missouri, U.S.A., 20–23 June 1993

745 The First International Conference on New Energy Systems and Conversions, Pacific Convention Plaza Yokohama, Yokohama, Japan, 27–30 June 1993

746 ENSEC '93 International Conference on Energy Systems and Ecology, Cracow, Poland, 5–9 July 1993

747 2nd Baku International Symposium on Energy, Environment, Economy, Baku, Azerbaijan, 17–20 August 1993

748 Progress in Electrocatalysis. Theory and Practice, Ferrara, Italy, 12–15 September 1993

749 International Assocation for Hydrogen Energy

NUMBER 10

E. NDZEBET and O. SAVADOGO 751 Electrocatalytic activity of the hydrogen evolution reaction in 3 M KOH on nickel electrodeposited with Co^{2+} and $PMo_{12}O_{40}^{3-}$ or $PW_{12}O_{40}^{3-}$

A. K. GUPTA, R. Z. PARKER, C. E. KEEFER and R. J. HANRAHAN 757 Gas phase formation of hydrogen chloride by a solar-driven chlorine–steam reaction

ZHAO YONGFENG, LI HONGJIE, CAI HAIYONG, YU YING and ZHU YAJIE 763 Simultaneous production of hydrogen and oxidation of pyrite slurries

GONGXUAN LU and SHUBEN LI 767 Hydrogen production by H_2S photodecomposition on $ZnFe_2O_4$ catalyst

E. PASSALACQUA, P. STAITI, L. PINO, M. VIVALDI, N. GIORDANO, E. J. TAYLOR and G. WILEMSKI — 771 — Influence of the morphological–absorptive properties upon the performance of phosphoric acid fuel cell gas diffusion electrodes

X. Q. TONG, R.-A. MCNICHOLL, K. KANDASAMY and F. A. LEWIS — 777 — Hydrogen permeation in stressed and strained membranes of palladium alloys

R. AMIR, T. SATO, K. Y. YAMAMOTO, T. KABE and H. KAMEYAMA — 783 — Design of solid reactants and reaction kinetics concerning the iron compounds in the UT-3 thermochemical cycle

H. KAMEYAMA, T. SATO, R. AMIR, K. YOSHIDA, M. AIHARA, M. SAKURAI, Y. TADOKORO, T. KAJIYAMA, T. YAMAGUCHI and N. SAKAI — 789 — Cycle simulation of the UT-3 thermochemical hydrogen production process

M. R. GOPAL and S. S. MURTHY — 795 — Prediction of heat and mass transfer in annular cylindrical metal hydride beds

M. R. SWAIN and M. N. SWAIN — 807 — A comparison of H_2, CH_4 and C_3H_8 fuel leakage in residential settings

E. ERDLE, W. DÖNITZ, R. SCHAMM and A. KOCH — 817 — Reversibility and polarization behaviour of high temperature solid oxide electrochemical cells

K. TANIMOTO, Y. MIYAZAKI, M. YANAGIDA, S. TANASE, T. KOJIMA, N. OHTORI, H. OKUYAMA and T. KODAMA — 821 — Cell performance of molten carbonate fuel cell with alkali carbonate eutectic mixtures

825 — Calendar of Events

827 — Hydrogen Energy and Energy Related Publications

Announcements

835 — European Workshop on Electrochemical Technology of Molten Salts, Hotel Tivoli Sintra, Sintra, Portugal, 14–17 March 1993

836 — Workshop on Global Warming Issues in Asia, Bangkok, Thailand, 7–9 July 1993

837 — An Invitation to Energy Scientists, Engineers and Planners

NUMBER 11

D. A. SPAGNOLO, L. J. CORNETT and K. T. CHUANG — 839 — Direct electro-steam reforming: a novel catalytic approach

D. KUMAR and H. D. KUMAR — 847 — Hydrogen production by several cyanobacteria

D. L. BLOCK and I. MELODY — 853 — Efficiency and cost goals for photoenhanced hydrogen production processes

P. MARUTHAMUTHU, S. MUTHU, K. GURUNATHAN, M. ASHOKKUMAR and M. V. C. SASTRI — 863 — Photobiocatalysis: hydrogen evolution using a semiconductor coupled with photosynthetic bacteria

H. K. ABDEL-AAL — 867 — Upgrading of high-pollutant oil residues into environmentally acceptable hydrogen fuel by partial oxidation

H. K. ABDEL-AAL — 875 — Storage and transport of solar energy on a massive scale: the hydrogen option

M. TAKEO, J. DASH, A. M. KASAAIAN, A. TRZYNKA and W. A. LANFORD — 883 — Formation of iron hydride in iron foil exposed to a hot, dense gas mixture of argon and hydrogen

T. KUMAKURA, K. HIRAOKA, M. IKAME S. KAN and T. MORISHITA — 887 — Combustion characteristics of stoichiometric hydrogen and oxygen mixture in water

R. K. GREEN and N. D. GLASSON — 895 — High-pressure hydrogen injection for internal combustion engines

H. R. HINDS — 903 — Hydrogen Energy News and Views

907 — Calendar of Events

Announcements

909 — International Conference on Energy, Environment and Electrochemistry, Karaikudi, India, 10–12 February 1993

910 Workshop on Optoelectronic Materials and their Applications, La Habana, Cuba, 18–25 February 1993
911 Project Energy '93, Kansas City, Missouri, 20–23 June 1993
912 The First International Conference on New Energy Systems and Conversions, Pacific Convention Plaza Yokohama, Yokohama, Japan, 27–30 June 1993
913 ENSEC '93 International Conference on Energy Systems and Ecology, Cracow, Poland, 5–9 July 1993
914 2nd Baku International Symposium on Energy, Environment, Economy, Baku, Azerbaijan, 17–20 August 1993
915 International Association for Hydrogen Energy

NUMBER 12

J. K. WU 917 Electrochemical method for studying hydrogen in iron, nickel and palladium
T. M. VATSALA 923 Hydrogen production from (cane-molasses) stillage by *Citrobacter freundii* and its use in improving methanogenesis
N. KOROVIN and E. UDRIS 929 Hydrogen electrodes with surface skeleton catalysts
E. P. DA SILVA and N. P. NEVES, JR 935 Research and development at the UNICAMP Laboratory of Hydrogen, Brazil, 1975–1992
DA-WEN SUN 945 Designs of metal hydride reactors
T.-H. JANG, Y.-G. KIM and J.-Y. LEE 951 Crystallization behaviors of the hydrogenated Zr-rich amorphous Zr_xNi_{1-x}: H alloys and the effects of titanium substitution
T. KREPEC, G. CARRESE and D. MIELE 955 Further investigations on electronically controlled hydrogen storage and direct injection system for automotive applications
M. A. EL-OSAIRY, I. A. EL-OSERY, A. M. METWALLY and M. M. KESHK 961 On the optimization of convective hydrogen storage bed model using $LaNi_5H_6$ or $FeTiH_{1.6}$
Y. SAKAMOTO, H. TANAKA, F. A. LEWIS and X. Q. TONG 965 Strain gradient-induced diffusion of hydrogen in palladium and nickel membranes
A. CONTRERAS LOPEZ and R. LOPEZ BOBO 971 Anaerobic digestion of cider apple residues
977 Calendar of Events

Announcements

979 International Conference on Energy, Environment and Electrochemistry, Karaikudi, India, 10–12 February 1993
980 European Workshop on Electrochemical Technology of Molten Salts, Hotel Tivoli Sintra, Sintra, Portugal, 14–17 March 1993
981 Workshop on Global Warming Issues in Asia, Bangkok, Thailand, 7–9 July 1993
982 International Symposium on Heat and Mass Transfer in Energy Systems and Environmental Effects, Cancun, Mexico, 22–25 August 1993
983 Progress in Electrocatalysis, Theory and Practice, Ferrara, Italy, 12–15 September 1993
984 The 10th World Hydrogen Energy Conference, Cocoa Beach, Florida, U.S.A., 20–24 June 1994
985 An Invitation to Energy Scientists, Engineers and Planners
i Index to Vol. 17, 1992